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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,871	07/17/2003	Masahiro Murasato	791_203 NP	2911

25191 7590 01/03/2005

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EXAMINER	
DOUGHERTY, THOMAS M	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 01/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/622,871	MURASATO ET AL.	
	Examiner	Art Unit	
	Thomas M. Dougherty	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *703* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *803*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al. (US 6,396,196) in view of Funemi et al. (JP 2000-261283). Takeuchi shows (fig. 3) a piezoelectric/ electrostrictive film type device (1) comprising a piezoelectric/ electrostrictive operation portion (5) in which at least one piezoelectric/electrostrictive layer (5) and at least one pair of electrodes (4, 6) electrically connected to the piezoelectric/ electrostrictive layer (5) are stacked on a substrate (2) formed of a ceramic (see ABSTRACT).

Takeuchi does not note that his device is characterized in that a highly water repellent surface which is modified in such an extent that infiltration of moisture into micro-pores opened in the outer surface of these piezoelectric/ electrostrictive layers or into gaps between the substrate and the piezoelectric/ electrostrictive layer is sufficiently inhibited, is formed on the outer surface of at least the piezoelectric/ electrostrictive layer or the upper electrode.

Funemi et al. show (fig. 1) a piezoelectric/ electrostrictive film type device comprising a piezoelectric/ electrostrictive operation portion (5) in which at least one

piezoelectric/electrostrictive layer (5) and at least one electrode (3) electrically connected to the piezoelectric/ electrostrictive layer (5); Funemi et al. also show a highly water repellent surface (2) which is modified in such an extent that infiltration of moisture into micro-pores opened in the outer surface of these piezoelectric/ electrostrictive layers (5) or into gaps between the substrate and the piezoelectric/ electrostrictive layer is sufficiently inhibited, is formed on the outer surface of at least the piezoelectric/ electrostrictive layer or the upper electrode (3).

Funemi et al. do not show at least two electrodes, only shown is the excitation electrode. Their piezoelectric/ electrostrictive film type device is not stacked on a substrate (2) formed of a ceramic (see ABSTRACT).

It would have been obvious to one having ordinary skill in the art to employ the highly water repellent surface which is modified in such an extent that infiltration of moisture into micro-pores opened in the outer surface of these piezoelectric/ electrostrictive layers or into gaps between the substrate and the piezoelectric/ electrostrictive layer is sufficiently inhibited, is formed on the outer surface of at least the piezoelectric/ electrostrictive layer or the upper electrode, of Funemi et al., in the device of Takeuchi et al. in order to provide a device superior in resistance to power and weather resistance. Such a design would lengthen the lifetime of the device, thereby reducing replacement costs.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The remaining prior art cited reads on at least some aspects of the claimed invention.

Direct inquiry to Examiner Dougherty at (571) 272-2022.

tmd

December 28, 2004

TOM DOUGHERTY
PRIMARY EXAMINER